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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,723	11/21/2001	Roy P. McMahon	R98152	5337
7590	01/17/2003			
Raytheon Company Bldg. EO/E01/E150 2000 East El Segundo Boulevard P.O. Box 902 El Segundo, CA 90245			EXAMINER MAYO III, WILLIAM H	
			ART UNIT 2831	PAPER NUMBER
			DATE MAILED: 01/17/2003	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,723	MCMAHON, ROY P.	
	Examiner	Art Unit	
	William H. Mayo III	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-20 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 21 November 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> .	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed November 21, 2001 has been submitted for consideration by the Office. It has been placed in the application file and the information referred to therein has been considered.

Drawings

2. The drawings are objected to because Figures 2-3 lack the proper cross-hatching which indicates the type of materials which may be in an invention. Specifically, the cross hatching to indicate the insulation and conductor materials is incorrect. The applicant should refer to MPEP Section 608.02 for the proper cross-hatching of materials.

3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-9, 11-14, 17-18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Griffin (Pat Num 5,864,094). Griffin discloses an electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) useful in supplying AC electrical power to audio equipment (Col 1, lines 51-53). With respect to claim 1, Griffin discloses an electrical cable (Figs 1-4) comprising a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducting central conductor shield (56) overlying the layer of central conductor insulation (54), wherein the cable (Fig 2) comprises a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding thereon, and wherein the cable (50) further comprises an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) and an outer insulation (74) overlying the electrically conducting outer shield

(72). With respect to claim 2, Griffin discloses that the electrical cable (50) is substantially circular viewed in cross section perpendicular to the local longitudinally axis (center of cable, Fig 2). With respect to claim 3, Griffin discloses that the center conductor (52) may be a plurality of electrical conducting central conductor wires (Col 5, lines 59-62). With respect to claim 4, Griffin discloses that the central conductor structure (center coaxial cable) is a coaxial wire structure (Fig 2). With respect to claim 5, Griffin discloses that the spiral conductor (20 as shown in Fig 4) comprises a plurality of electrically conducting spiral conductor wires (25). With respect to claim 6, Griffin discloses that the plurality of spiral conductor structures are each of the substantially the same diameter (Fig 2, Col 6, lines 16-19). With respect to claim 8, Griffin discloses that each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 2). With respect to claim 9, Griffin discloses that each spiral conductor structure (60, 62) has a designated identity (line and neutral conductors respectively), wherein the circumferential arrangement of each spiral conductor (60, 62) is selected responsive to its designated identity (line and neutral conductors) and to the designated identities of each pair of circumferentially adjacent spiral conductor structures (adjacent 60 & 62's, Cols 3 & 5, lines 49-53 & 20-42, respectively). With respect to claim 11, Griffin discloses an electrical cable (Fig 2) electrical cable (Figs 1-4) comprising a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducting central conductor

shield (56) overlying the layer of central conductor insulation (54), wherein the cable (Fig 2) comprises a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding and wherein each spiral conductor (60, 62) retains a same pair of circumferentially adjacent other spiral conductor structure (adjacent 60 & 62's) along the length of the cable (50, Fig 2). wherein each spiral conductor structure (60, 62) has a designated identity (line and neutral conductors respectively), and wherein the circumferential arrangement of each spiral conductor (60, 62) is selected responsive to its designated identity (line and neutral conductors) and to the designated identities of each pair of circumferentially adjacent spiral conductor structures (adjacent 60 & 62's, Cols 3 & 5, lines 49-53 & 20-42, respectively), and wherein the cable (50) further comprises an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) and an outer insulation (74) overlying the electrically conducting outer shield (72), wherein the electrical cable (50) is substantially circular viewed in cross section perpendicular to the local longitudinally axis (center of cable, Fig 2). With respect to claim 12, Griffin discloses that the center conductor (52) may be a plurality of electrical conducting central conductor wires (Col 5, lines 59-62). With respect to claim 13, Griffin discloses that the spiral conductor (20 as shown in Fig 4) comprises a plurality of

electrically conducting spiral conductor wires (25). With respect to claim 14, Griffin discloses that the plurality of spiral conductor structures are each of the substantially the same diameter (Fig 2, Col 6, lines 16-19). With respect to claim 17, Griffin discloses a method of preparing an electrical cable (Figs 1-4) comprising the steps of providing a central conductor structure (i.e. coaxial cable positioned in the center of the cable) that has an electrically conducting central conductor (52), a layer of central conductor insulation (54) overlying the central conductor (52), and an electrically conducting central conductor shield (56) overlying the layer of central conductor insulation (54), providing a plurality of spiral conductor structures (60, 62) overlying and spirally wrapped around the central conductor structure (center coaxial cable, see Fig 3), wherein each of the spiral conductor structures (20, as shown in Fig 4) comprises an electrical conducting spiral conductor (25, Col 4, lines 30-35), a spiral conductor insulation (24) overlying the spiral conductor (20), wherein each spiral conductor structure (20) has no electrically conducting shielding thereon, selecting a circumferential arrangement of each spiral conductor (60, 62) responsive to its designated identity and to the designated identities of each of a pair of circumferentially adjacent spiral conductor structures along a length of the cable (50), placing an electrically conducting outer shield (72) overlying the plurality of spiral conductors (60, 62, Fig 2) placing an outer insulation (74) overlying the electrically conducting outer shield (72) to form the cable (50) having a local longitudinal axis (center of cable, Cols 3 & 5, lines 49-53 & 20-42, respectively). With respect to claim 18, Griffin discloses a method of preparing an electrical cable (50), wherein the plurality of spiral conductor structures are each of the substantially the same diameter

(Fig 2, Col 6, lines 16-19). With respect to claim 20, Griffin discloses a method of preparing an electrical cable (50), wherein the electrical cable (50) is substantially circular viewed in cross section perpendicular to the local longitudinally axis (center of cable, Fig 2).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7, 10, 15-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffin (Pat Num 5,864,094) in view of Hansen et al (Pat Num 3,829,603, herein referred to as Hansen). Griffin discloses an electrical cable (Figs 1-4) having a local longitudinal axis (center of cable) useful in supplying AC electrical power to audio equipment (Col 1, lines 51-53) as disclosed above with reference to claim 1.

However, Griffin doesn't necessarily disclose the plurality of spiral conductors structures having different diameters (claims 7, 15, & 19), nor the cable comprising a spiral spacer structure spirally wrapped around the central conductor and lying between two spiral conductor structures in side by side relationship (claims 10 & 16).

Hansen teaches an electrical cable (Figs 1-2) having increased flexibility (Col 1, lines 20-23). Specifically, with respect to claims 7 & 15, Hansen teaches an electrical cable (10) having a plurality of spiral conductors (17-19 & 31-33, i.e. power conductors

and ground conductors respectively), wherein the plurality of spiral conductors (17-19 & 31-33) have different diameters (Fig 1). With respect to claim 10 & 16, Hansen teaches that a spiral spacer (27) is spiral wrapped around a central conductor structure (26), wherein the spiral spaces (27-29) are positioned between two spiral conductors (15 & 31) in a side-by-side relationship (Fig 1). With respect to claim 19, Hansen teaches a method wherein at least some of the plurality of spiral conductors (17-19 & 31-33) have different diameters (Fig 1).

With respect to claims 7, 15, & 19, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the plurality of spiral conductors of Griffin to comprise at least some of the plurality of spiral conductors having different diameters as taught by Hansen because Hansen teaches that such a configuration provides an electrical cable having increased flexibility (Col 1, lines 20-23) and since it has been held that such a modification would have involved a mere change in size of a component and a change of size is generally recognized as being within the ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

With respect to claims 7, 15, & 19, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the plurality of spiral conductors of Griffin to comprise spiral spaces positioned between two spiral conductors as taught by Hansen because Hansen teaches that such a configuration provides an electrical cable having increased flexibility (Col 1, lines 20-23).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Anastasi et al (Pat Num 5,763,836), Woody et al (Pat Num 5,777,273), Bryant (Pat Num 3,324,233), Olsson (Pat Num 5,808,239), Horie et al (Pat Num 5,659,152), Wijnberg et al (Pat Num 6,297,455), Lawrenson (Pat Num 3,678,177), Buck et al (Pat Num 5,834,699), Ono et al (Pat Num 5,976,070), all of which disclose electrical cables having several configurations.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (703) 306-9061. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (703) 308-3682. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3431 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

WHM III
January 13, 2003